

VYSOTSKIY, B.V.; MALYKH, F.S.

Preliminary data on the effect of cortisone on leptospirosis in white mice. Zhur.mikrobiol., epid.i immun. 33 no.8:46-48 Ag '62.
(MIRA 15:10)

1. Iz Vladivostokskogo instituta epidemiologii, mikrobiologii i
gigiyeny.

(LEPTOSPIROSIS) (CORTISONE)

VYSOTSKIY, B. V.

35484. O vzaimosvyazi peptospiroznoy infektsii lyudey i domashchnik zhivotnykh.
—V ogl: V. V. Vysodkiy. Vrachev. Delo, 1949, No. 11, stv. 1023-24.

Letopis' Zhurnal'nykh Statey, Vol. 48, Moskva, 1949

VYSOTSKIY, B.V.; RED'KINA, V.G.

Certain data on carriers of pathogenic *Leptospira* in nature. Zhur.mikrobiol.
epid.i immun. no.8:66-67 Ag '53. (MLRA 6:11)

1. Primorskoy krayevoy institut epidemiologii i mikrobiologii.
(Spirochetosis)

VYSOTSKIY, B.V.; RED'KINA, V.G.

Observations of the spread of *Leptospira Akiyami B* among eastern voles;
author's abstract. Zhur.mikrobiol.epid.i immun. no.9:56 S '53. (MLRA 6:11)

1. Primorskiy krayevoy institut epidemiologii i mikrobiologii.
(Spirochetosis) (Parasites--Field mice)

VYSOTSKIY, B. V.

USSR/Medicine - Leptospirosis

FD-553

Card 1/1 Pub. 148 - 16/23

Author : Vysotskiy, B.V.; Mal'tsev, S.V.; and Reb'kina, V.G.

Title : Agricultural animals - a reservoir of a new serological type of Leptospirae

Periodical : Zhur. mikrobiol. epid. i immun. 6, 49-51, June 54

Abstract : Serological examination of cattle revealed the extensive occurrence of leptospirosis infection among them, caused by a new serological type of leptospirae, LP-183, which is similar to L.hebdomadis and L.nero. Cultures of type P-183 Leptospirae were also isolated from the blood of jaundiced suckling pigs. Rodents trapped in the vicinity of the diseased animals were found to be free of Leptospirae. Serological types I,II, III, IV,VI, and P-183 were used in the examinations. The results of the investigations are presented on two charts. No references are cited.

Institution : Primorskiy Institute of Epidemiology, Microbiology, and Hygiene

Submitted : November 12, 1953

VYSOTSKIY, B.V.; RED'KINA, V.G.

Observations on eastern field mice as leptospira carriers. Zhur.
mikrobiol. epid. i immun. no.6:68 Jo '54. (MLBA 7:7)

1. Iz Primorskogo instituta epidemiologii, mikrobiologii i
gigiyeny.
(FIELD MICE) (LEPTOSPIRA AUTUMNALIS)

VYSOTSKIY, B.V.; RED'KINA, V.G.

Observation of eastern voles as carriers of *Leptospira*. Zhur.
mikrobiol.epid.i immun. no.7:99 J1 '54. (MIRA 7:9)

1. Iz Primorskogo instituta epidemiologii, mikrobiologii i gigiyeny.
(LEPOSPIROSIS)

Abstract U-7920, 8 Mar 56

VYSOTSKIY, B.V.

Problems for discussion on the epidemiology of anicteric
leptospirosis. Zhur.mikrobiol.epid. i immun. no.11:107-109
N '55. (MLRA 9:i)
(LEPTOSPIROSIS, epidemiology)

SPIVAK, M.Ya.; ARGUDAYEVA, N.A.; NABIYEV, E.G.; CHISTOVICH, G.N.;
RIVLIN, M.I.; SEMENOV, M.Ya.; KRUGLIKOV, V.M.; SHAL'NEVA, A.M.;
TITROVA, A.I.; RAYKIS, B.N.; MILYAYEVA, Ye.F.; BRUDNAYA, E.I.;
GODINA, I.F.; VOL'FSON, G.I.; SOSONKO, S.M.; KOLESINSKAYA, L.A.;
VYSOTSKIY, B.V.; MALYKH, P.S.; MIROTVORTSEV, Yu.I.; SYCHEVSKIY,
P.T.; GOPACHENKO, I.M.; KARPITSKAYA, V.M.; FETISOVA, I.A.;
MARTYNYUK, Yu.V.; EMDINA, I.A.

Annotations. Zhur. mikrobiol., epid. i immun. 40 no.3:128-131
Mr '63. (MIRA 17:2)

1. Iz Kemerovskogo meditsinskogo instituta i Kemerovskoy
klinicheskoy bol'nitsy No.3 (for Spivak, Argudayeva). 2. Iz
Kazanskogo instituta usovershenstvovaniya vrachey imeni
Lenina (for Nabyev). 3. Iz Leningradskogo kozhnogo dispansera
No. 1 (for Chistovich, Rivlin). 4. Iz Rostovskoy oblastnoy
sanitarno-epidemiologicheskoy stantsii (for Semenov). 5. Iz
Stavropol'skogo instituta vaktsin i syvorotok (for Kruglikov,
Shal'neva, Titrova, Raykis). 6. Iz Kuybyshevskogo instituta
epidemiologii, mikrobiologii i gigiyeny i Tsentral'nogo insti-
tuta usovershenstvovaniya vrachey (for Milyayeva). 7. Iz
Vsesoyuznogo nauchno-issledovatel'skogo instituta zhelezn-
dorozhnoy gigiyeny Glavnogo sanitarnogo upravleniya Minis-
terstva putey soobshcheniya i Detskoy polikliniki st. Lyublino

(Continued on next card)

SPIVAK, M.Ya.----- (continued) Card 2.

Moskovskoy zheleznoy dorogi (for Brudnaya, Godina). 8. Iz Vrachebno-sanitarnoy sluzhby Severnoy zheleznoy dorogi (for Vol'fson, Sosonko, Kolesinskaya). 9. Iz Vladivostokskogo instituta epidemiologii, mikrobiologii i gigiyeny i Primorskoj krayevoy protivochumnoy stantsii (for Vysotskiy, Malykh, Mirotvortsev, Sychevskiy, Gopachenko). 10. Iz Yaroslavskogo meditsinskogo instituta (for Karpitskaya). 11. Iz Aralmorskoy protivochumnoy stantsii (for Fetisova). 12. Iz L'vovskogo instituta epidemiologii, mikrobiologii i gigiyeny (for Martynyuk, Emdina).

SOMOV, G.P.; VYSOTSKIY, B.V.

Conference in Vladivostok. Zhur.mikrobiol.epid.i imm. 31 no,8:
155-157 Ag '60. (MIRA 14:6)
(EPIDEMIOLOGY--CONGRESSES)

VYSOTSKIY, B.V.; RYASHCHENKO, L.P.

Leptospirosis in spotted deer. Zhur. mikrobiol. epid. i imm.
32 no.5:67-68 My '61: (MIRA 14:6)

1. Iz Vladivostokskogo instituta epidemiologii, mikrobiologii i
gigiyeny i laboratorii pantovogo olenevodstva i zverovodstva Dal'-
nevostochnogo instituta sel'skogo khozyaystva.
(LEPTOSPIROSIS) (DEER--DISEASES AND PESTS)

VYSOTSKIY, B.V.; RANILIN, V.K.

Results of examining certain fresh-water birds and animals for leptospirosis. Zhur.mikrobiol.epid.i immun. 31 no.9:42-44 S '60.

(MIRA 13:11)

1. Iz Vladivostokskogo instituta epidemiologii, mikrobiologii i gigiyeny i Sikhote-Alinskogo zapovednika.
(LEPTOSPIROSIS)

VYSOTSKIY, B.V.; MALYKH, F.S.; KUZNETSOV, A.P.

Game animals as supplementary reservoirs of pathogenic *Leptospira* in natural conditions. Zhur. mikrobiol. epid. i imin. 29 no.8:49-51 Ag '58.
(MIRA 11:10)

1. Iz Vladivostokskogo instituta epidemiologii, mikrobiologii i gigiyeny.

(LEPTOSPIROSIS, transm.

by wild animals (Rus))

(ANIMALS, dis.

leptospirosis, transm. by wild animals (Rus))

VYSOTSKIY, B.V., SOMOV, G.P.

Scientific conference in Vladivostok. Zhur.mikrobiol.epid. 1
immun. 29 no.6:148-150 Je '58 (MIRA 11:7)
(MARITIME TERRITORY---MEDICAL GEOGRAPHY)

VYSOTSKIY, B.V.; MALYKH, F.S.; PROKOF'YEV, A.A.

Some data on leptospirosis in cats. Zhur.mikrobiol.epid.i immu.
31 no.2:140-141 F '60. (MIRA 13:6)

1. Iz Vladivostokskogo instituta epidemiologii, mikrobiologii i
gigiyeny.

(LEPTOSPIROSIS veterinary)

VYSOTSKIY, D., kand.tekhn.nauk; ELIAVA, A., inzh.

Use of radioactive isotopes in testing automobiles for wear
resistance. Avt. transp. 39 no.5:36-39 My '61. (MIRA 14:5)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni
nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut.
(Motor vehicles—Testing)
(Radioisotopes—Industrial applications)

S/063/63/008/002/009/015
A057/A126

AUTHORS: Butt, Yu.M., Professor, Timashev, V.V., Candidate of Technical Sciences, Vysotskiy, D.A.

TITLE: Investigations of the sintering kinetics of Portland-cement raw mixtures at high temperatures

PERIODICAL: Zhurnal vsesoyuznogo khimicheskogo obshchestva imeni D.I. Mendeleeva, v. 8, no. 2, 1963, 179 - 188

TEXT: The authors discuss methods of high-temperature clinker kilning, kinetics of the solid-phase sintering, of liquid-phase sintering, the effect of cooling the melt on the mineralogical composition of the clinker, the problems in production of molten Portland cement, the phase composition of high-temperature clinkers, and properties of cements obtained from high-temperature clinkers. High-temperature kilning of raw mixtures might be carried out in a "boiling layer", in suspension, or by melting with subsequent crystallization. Several constructions of furnaces for the first method are being developed at the present time. A multi-chamber furnace was developed in the Yuzhgiprotsement. The gran-

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S/063/63/008/002/009/015

A057/A126

Investigation of the sintering kinetics of

ulated raw mixture passes five horizontal chambers and is warmed up to 1,450°C by a hot gas stream which rises through the layer of the material with a 1.5 - 3.0 m/sec rate. This type of heat exchange in the "boiling" layer is very intensive. A vertical furnace of this type was constructed by the NIItsement. Tests of the new constructions showed that this type of furnace has a higher specific capacity than rotating kilns. Investigations of fast kilning were carried out with artificial mixtures (mainly industrial slurries) of the Bryansk factory and the factory "Bol'shevik". Fast kilning of granulated raw materials demonstrated that the gas stream must be turbulent thus increasing the collisions between the particles, i.e., improving the aggregation. The use of granulated materials decreases the carrying away of dust from the cyclon furnaces. In the institute Yuzhgiprotssement a clinker was obtained in a flame-cyclone furnace at 1,470 - 1,510°C containing 2 - 8% of free lime and 10 - 15% CaCO_3 . The mineralization process was intensified and the degree of lime assimilation raised to 0.96 - 0.99 by adding 1% fluorite and 2% iron oxide to the raw mixtures. In clinkers of molten cements obtained by the converter method alite crystallizes in form of long prisms. Calcium oxide and magnesium oxide crystallize from the melt at lower temperatures than alite and belite in the form of

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8/063/63/008/002/009/015
A057/A126

Investigation of the sintering kinetics of

relatively small (10 - 20 μ) crystals. Thus cements might be obtained from raw mixtures with a low saturation degree. Cements manufactured from molten clinkers above 1,500°C can have a strength of 400 - 500 kg/cm². The binding properties depend on the ratio between the crystalline and glassy phase and on other variable factors. There are 6 figures.

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BUTT, Yu. M., prof.; TIMASHEV, V. V., kand. tekhn. nauk;
VYSOTSKIY, D. A.

Kinetics of sintering of mixed Portland cement raw materials
at high temperatures. Zhur. VKHO 8 no.2:179-188 '63.
(MIRA 16:4)

(Portland cement)

BUTT, Yu.M., doktor tekhn. nauk, prof.; TIMASHEV, V.V., kand. tekhn. nauk; VYSOTSKIY, D.A., inzh.; PANINA, N.S., inzh.

Burning portland cement raw material mixes at high temperatures (up to 2273° K). TSement 30 no.1:9-12 Ja-F '64.

(MIRA 17:8)

VYSOTSKIY, D.P.

V-95A vibrohammer. Razved. i ozh. neir 27 no.9:48-50 S '61.
(MIRA 17:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut stroitel'nogo
i dorozhnogo mashinostroyeniya.

VYSOTSKIY D. I.

Conference on Problems of Automobile Engine Life (Konferentsiya po problemam dolgovechnosti avtomobilnykh dvigatel'nykh agregatov), 1957, # 3, p. 57 (NAMI)

The conference was organized by the GTO Mashprots and convened in 1957 in Moscow. A number of 230 delegates from automobile plants, research institutes, and higher technical schools participated.

Participating persons included: D.I. Vysotskiy, Chief Designer of the Leningrad Automobile Plant; P.I. Boykov, Chief Designer of the Kharkov Plant; G.S. Golov, K.K. Kubata, leading designer of the Moscow Plant of Small Engine Displacement Automobiles (Moskovskiy zavod malolitrzhnykh avtomobilov); V.A. Mitrofanov, Candidate of Technical Sciences; A.D. Kuritsina of the Machine Institute of the USSR Academy of Sciences (Institut mashinovedeniya Akademii nauk SSSR), scientific worker of NAMI; A.G. Al'perovich ("Life of Modern Engines of Soviet and Foreign Make"); Candidate of Technical Sciences; A.B. Kozlov (of NAMI) ("On Application of Highly Effective Air Filters for Increasing the Life of Automobile Engines").

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and 67, which is used by the plant, is not a bearing. At the Moncov Automobile Plant, Isani Mithachov, the
an annual saving of 21 million rubles.

SOV/137-57-11-22411

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 11, p 255 (USSR)

AUTHORS: ~~Vysotskiy, D.I.~~, Zavel'skiy, V.S.

TITLE: Isotopes Used to Investigate Resistance of Materials to Wear on a Wear-testing Machine (Issledovaniye iznosostoykosti materialov pri pomoshchi radioaktivnykh izotopov na iznosnoy ustanovke)

PERIODICAL: V sb.: Izuch. iznosa detaley mashin pri pomoshchi radioaktivn. izotopov. Moscow, AN SSSR, 1957, pp 26-38

ABSTRACT: A description is offered of an isotope method developed by NAMI (State Automotive Scientific-research Institute) to investigate the resistance of materials to wear. The parts are activated by introducing isotopes into the molten metal. A method is set forth for calculating the amount of radio-isotope required to attain a given level of sensitivity. The distribution of the isotope in the metal is monitored by taking small specimens from various spots on the part or sample or by autoradiography. The wear testing of activated specimens is done with a laboratory friction machine (cylinder and block) or on a machine for producing wear on the faces of piston rings. Measurement of

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Isotopes Used to Investigate Resistance of Materials (cont.)

wear in either type of equipment is done by determining the activity of the products of wear in the oil. The method of activation and measurement of wear described herein may be applied, without major change, to measuring the wear of parts of engines in operation. The need for safety measures in working with radioactive materials is emphasized, and some instructions are presented in this connection.

A.M.

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25(6)

SOV/113-59-5-16/21

AUTHORS: Zavel'skiy, V.S.; Vysotskiy, D.I.; Lozar', A.S.

TITLE: Conference on the Application of Radioactive Isotopes and Radiation in the Automobile and Tractor Industries

PERIODICAL: Avtomobil'naya promyshlennost', 1959, Nr 5, pp 42 - 44 (USSR)

ABSTRACT: At the end of 1958, a scientific-technological conference was convened, dealing with the application of radioactive isotopes and radiation in the automobile and tractor industries. The conference was organized by NAMI in cooperation with NATI, the Komissiya po atomnoy energii otdeleniya tekhnicheskikh nauk AN SSSR (Atomic Energy Commission of the Technical Sciences Department of the AS USSR) and the automobile manufacturing department of NTO Mashprom. The majority of the 23 reports delivered at the conference dealt with the application of radioactive isotopes for studying the wear of internal combustion engines. I.M. Primakov reported on the application of Co⁶⁰

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for investigating the causes of wear of the cylinder/
piston group during the run-up of an engine. Using
a D-6 engine, I.M. Primakov developed an experimental
set-up for determining regularities and causes of
the piston-cylinder wear. Into each of the top com-
pression rings 12 radioactive cobalt inserts were
pressed, having the dimensions 0.9x1.0 mm. The total
activity of these inserts amounted to 100 millicurie.
The wear was measured by determining the amount of
radioactive particles in the oil using a gas dis-
charge counter. I.M. Primakov established by this
method that 75--80% of the total run-up wear is
caused by the absence of oil at sliding or turning
surfaces. The corrosion wear does not exceed 25%.
The wear curve obtained for the run-up period may
be divided into two phases - the starting and the
warm-up time. For the D-6 engine the optimum run-up
is achieved at 600-700 rpm. The rotating surfaces

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are run in during the warm-up after the "scoring" during the preceeding phase. The corrosive wear in this phase amounts to about 75%. A minimum wear is observed at 1,000 - 1,200 rpm. The warm-up of the engine working under load is connected with an increase of the overall wear. In the author's opinion it is advisable to operate the engine at idling speed during the first 5 - 10 minutes and then at small loads in low gear. B.P. Pakhomov presented the results of an investigation of the wear of the upper ring during forced operation of a compression ignition engine. These experiments were conducted on a one-cylinder D-14 engine. The upper piston ring was activated by cobalt-nickel alloy inserts of 0.9 mm diameter and 1.1 mm length. The wear was determined by a conventional method of measuring by a counter unit the radioactive cobalt accumulation in the drum of an oil centrifuge. The

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counters MS-4 and MS-11 were installed at the centrifuge inlet and at the oil inlet of the engine. The crankcase oil was changed after each test. Measurement results were recorded by MSShPr-054 self-recording galvanometers. The investigation lead to the conclusion that a load increase of the engine exceeding 6 kg/cm^2 for the rated angle of fuel injection advance causes an intensive wear of the upper compression ring, limiting the forcing of the engine (permissible to 1740 rpm). The intensive wear is explained by an increase of the exhaust gas temperature during a load increase. In case the angle of fuel injection advance deviates from the rated value, the intensive wear will begin at lesser loads. The author recommends oil cooling to $50 - 55^\circ$ and a cooling water temperature between $70 - 80^\circ$. V.I. Stetsenko explained a test arrangement for investigating the wear of crankshaft journals

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without using an engine. The wear resistance of a crankshaft is usually determined by experimental operation of an engine for 1,000 - 3,000 hours with subsequent micrometric measurements of the journals. Measuring the wear of a crankshaft by means of radioactive isotopes cuts the time required for investigation to a considerable extent, eliminating the necessity of disassembling the engine. Crankshaft elements of any series engine may be tested with this method, having journal diameters up to 95 mm. The surface of the journal under investigation is activated by 16 cobalt-nickel alloy inserts. The latter are evenly spaced on two circumferences corresponding to the usual areas of micrometric measurements. The wear is estimated by the amount of radioactivity, i.e. the amount of radioactive particles detained in the oil filter. The experiments conducted show that comparative wear resist-

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ance data may be obtained from materials used for manufacturing automobile and tractor crankshafts. V.P. Lebedev investigated the crankshaft journal wear on a full-size ZIL-120 engine installed on a test stand. The journals were activated with zinc-65 inserts, installed parallel to the axis of the journal. About 8 radioactive inserts were installed in the area of maximum wear. It is possible to determine the wear of a single journal by connecting the other bearings to a different oil reservoir. With this method considerably less oil is required, whereby also the radioactivity of the inserts could be reduced. D.I. Vysotskiy reported on a mobile highway laboratory built with a PAZ-653 bus. The laboratory was developed for investigation of constructional, technological and operational factors of engine wear. The equipment is powered by a AB-2 power plant. The wear is determined from the

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amount of radioactive particles found in the lubricant of the assembly under investigation. The mobile laboratory is equipped with an electrical dust measuring apparatus for determining the dust content of the air before and after passing thru the airfilter. Not only parts belonging to the bus, housing the laboratory, may be investigated, but also parts of other automobiles. For example, when determining engine wear, the crankcase of the engine under investigation is connected by hoses to the measuring equipment in the mobile laboratory and the oil is pumped thru the pick-up filters. The report of N.N. Velichkin, I.N. Nabiyev and A.I. Nisnevich dealt with the investigation of the influence of different factors on the wear of tractor parts. It contained recommendations for a better sealing of the air intake ducts of tractor engines. A.Kh. Mliava explained the work conducted

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at NAMI in studying the influence of heating the fuel mixture on the carburetor engine wear. The author recommends using a combination of gas and water heating. V.S. Zavel'skiy and K.S. Ramayya reported on an investigation of factors influencing the wear of lubricated surfaces. The authors also investigated the gas corrosion influence on parts of the piston-cylinder group of an engine and the wear caused by oil decomposition products. D.M. Aronov and V.I. Golov presented the results of comparative tests of new antiknock admixtures for gasoline. The results showed that the experimental antiknock compounds had a low toxic effect and nearly met the requirements set for the lead antiknock compound R-9, but they increased engine wear. The test results necessitate the development of improved antiknock compounds on an iron basis and chemicals which are added to oils for neutralizing

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harmful effects of antiknock compounds. B.A. Zakha-
renko explained a method of measuring simultaneously
the wear of two engines. The parts to be investigat-
ed are activated by radioactive materials radiating
gamma rays with considerably different energies.
Two channels in the counting circuit having differ-
ent discrimination levels are used for dividing
at the counter the particles of different energies.
The papers of S.V. Rummyantsev, R.A. Srapenyanets
dealt with the application of radioactive isotopes
as radiation sources used for detecting defects in
metals. The report of R.A. Srapenyanets and S.S.
Arabyan dealt with a new method of estimating the
susceptibility of oils to carbon formation at pi-
ston rings during the operation of the engine. For
this purpose, radioactive cobalt⁶⁰ was put into the
piston ring lock. A.Ya. Sergiyevskiy told of the
experience made with gamma defectoscopy at the Avto

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zavod imeni Likhacheva (Automobile Plant imeni Likhachev). He presented data on the application of standard instruments used by plant workers for inspecting welding seams and steel parts up to 200 mm thickness. The report of G.M. Azarevich and A.I. Nisnevich dealt with the application of radioactive isotopes for investigating the wear of non-metallic materials, especially rubber gaskets. V.E. Vaynshteyn and A.M. Prodzinskiy investigated the absorption of abrasive particles by bearing materials. A.N. Chertovskikh in cooperation with V.V. Kondashevskiy explained the application of radioactive isotopes for checking the dimensions of parts during the machining process on machine tools. The authors investigated contact method using radioactive isotopes and noncontact methods, using radiation only, for controlling the dimensions of parts. The contact method has certain disadvantages, since here

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parts are exposed to wear, although the measuring accuracy is about 1 micron. For this purpose the alpha radiation of thorium is used. The noncontact radiation method involves the application of a small X-ray source, for example, the medical X-ray device RU-750, or a container with a radioactive isotope producing a "soft" radiation (Thulium-170, Europium-155). With the radiation method, a narrow beam of gamma rays is directed tangentially to the surface of the part to be checked. Compared to photoelectrical or optical methods, the radiation method has the advantage of being independent of the influences of grease and oil on the surface of the parts to be measured. The authors calculated that the application of this method would increase the productivity of a machine tool by 25-30% resulting in an annual saving of 10,000-14,000 rubles. N.I. Leshchinskiy, Ye.A. Spitsin and A.S. Shtan' considered in their

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report "Principal and Technological Solutions for
Planning Laboratories for the Investigation of the
Wear of Machine Parts" various problems of precau-
tion measures for work with radioactive materials.
The reports of A.Kh. Eliava and V.V. Volkovitskaya
dealt also with safety measures. The conference
participants agreed that a number of investigation
methods using radioactive isotopes must be developed
in the future. It is planned to convene another con-
ference on the application of radioactive isotopes
in the automobile industry in 1960.

ASSOCIATION: NAMI

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NISNEVICH, A.I.; VYSOTSKIY, D.I.

Scientific and technical conference on the use of radioactive isotopes and radioactive emissions in automobile and tractor engineering. Atom.energ. 6 no.3:341-343 Mr '59. (MIRA 12:4)
(Radioisotopes--Industrial applications)
(Automobile engineering)

VYSOTSKIY, D.I.; ZAVEL'SKIY, V.S.

Measuring motor part wear with the aid of radioactive isotopes.
Avt.1 trakt.prom. no.4:26-28 Ap '56. (MLRA 9:8)

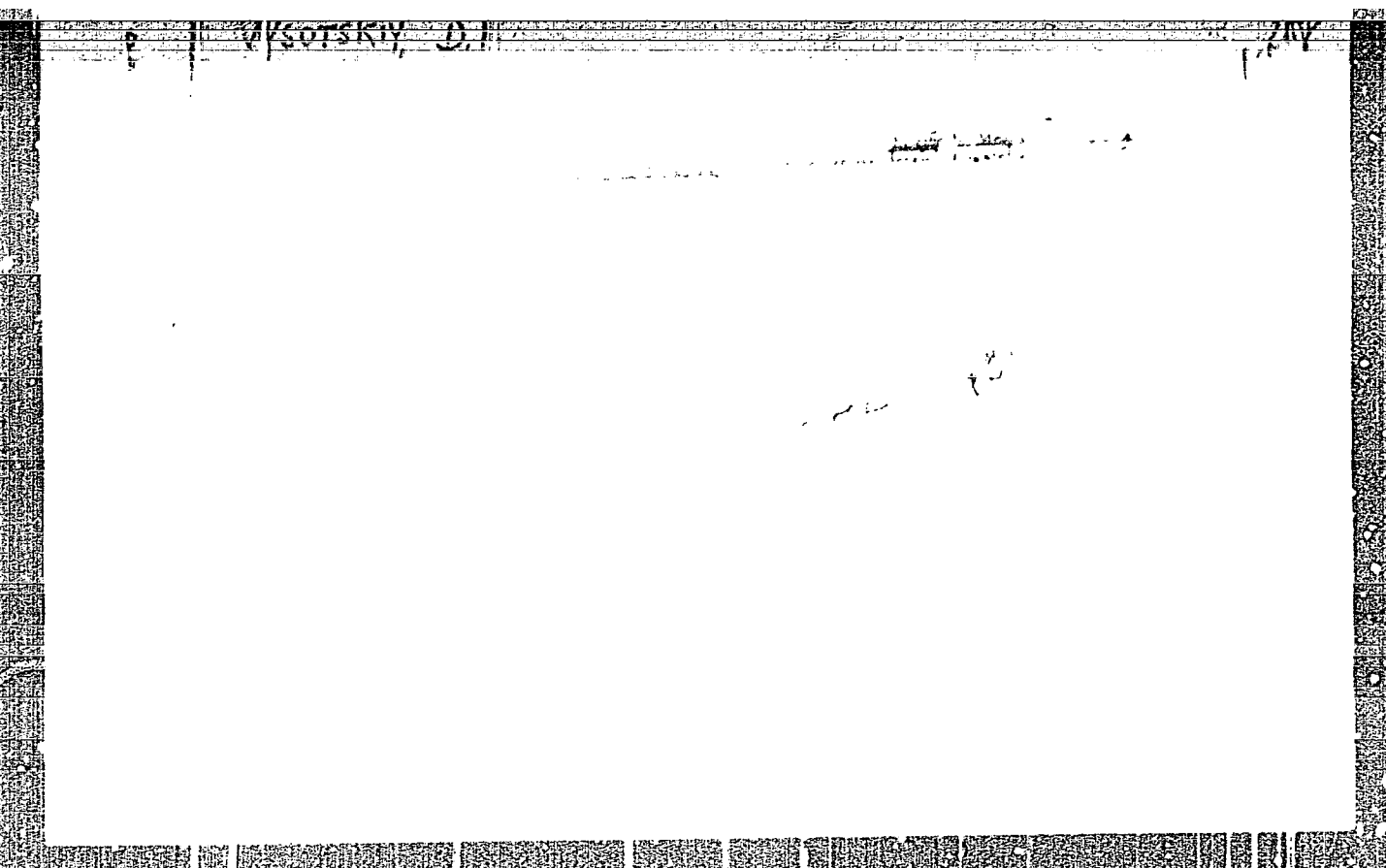
1. Nauchno-issledovatel'skiy avtomotornyy institut.
(Automobiles--Testing)
(Radioactive tracers--Industrial application)
(Mechanical wear)

VYSOTSKIY, D.I.; KLINKOVSHTEYN, G.I.; SABININ, A.A.

[Stock cars in sports competitions] Seriinye avtomobili v skorost-
nykh sorevnovaniyakh. Moskva, Gos. izd-vo "Fizkul'tura i sport,"
1953. 95 p. [Microfilm] (MLRA 7:8)
(Automobile racing)

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VYSOTSKIY, D. I.

Seriinye avtomobili v sportivnykh sorevnovaniyakh [Stock cars in sports competitions].
Moskva, Izd-vo "Fizkul'tura i sport," 1953. 96 p.

SO: Monthly List of Russian Accessions. Vol. 6 No. 12 March 1954.

VYSOT'SKIY, D.

AFANAS'YEV, L., glavnyy sud'ya sorevnovaniy; VYSOT'SKIY, D., predsedatel' tekhnicheskoy komissii.

Superiority of the U.S.S.R. in automobile sport. Avt.transp.32
no.11:29-31 N '54. (MLRA 8:3)
(Automobile racing)

VYSOTSKIY, D I

Seriynnye Avtomobili V Skorostnykh Sorevnovaniyakh /Serial Automobiles in Speed Competitions By/ D. I. Vysotskiy, G. I. Klinkovshteyn, A. A. Sabinin. Moskva, "Fizkul'tura i Sport," 1953.
95 p. Illus., Diags., Tables.

N/1
743.21
.V51

VYSOTSKIY, D.P., inzh.

Vibration hammer for sinking and recovering medium-diameter
metal pipes. Stroil dor.mash. 6 no.8:15-17 Ag '61. (MIRA 14:8)
(Vibrators) (Piling (Civil engineering)) (Boring)

VYSOTSKIY, D.V., kandidat tekhnicheskikh nauk; ZAVEL'SKIY, V.S.

Determining the wear of parts by means of radioactive isotopes. Avt.trakt.
prom. no.9:11-14 S '53. (MIRA 6:9)

1. Nauchnyy avtomotorny institut. (Isotopes--Industrial application)

24(5)

AUTHORS:

Vysotskiy, G. I., Inopin, Ye. V.,
Kresnin, A. A.

SOV/56-36-2-33/63

TITLE:

The Scattering of Neutrons by Oriented Nonspherical Nuclei
(Rassevaniye neytronov oriyentirovannymi nesfericheskimi
yadrami)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
Vol 36, Nr 2, pp 574-530 (USSR)

ABSTRACT:

In earlier papers (S. I. Drozdov, Inopin, Refs 1-3) the influence exercised by the nonsphericity of nuclei on total cross section in neutron scattering was investigated. At neutron energies of some tens of Mev the total neutron cross section varies as a result of nonsphericity by 2-3% in the case of experimentally observable nonsphericity. The nucleus is considered to be an ellipsoid with the semiaxes a and b ; a is assumed to lie in the same direction as the symmetry axis of the nucleus. If the direction of the symmetry axis coincides with the incident neutron beam, $\sigma_t^{\parallel} = 2\pi b^2$; if the symmetry axis is vertical to the inciding beam, then

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$\sigma_t^{\perp} = 2\pi ab$ ($\sigma_t^{\perp}/\sigma_t^{\parallel} = a/b$) and, correspondingly $\sigma_t^{\perp}/\sigma_t^{\parallel} > 1$ or

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$6 \frac{1}{t} / 6 \frac{1}{t} < 1$. a/b values of 1.3-1.4 were found experimentally, which would correspond to a nonsphericity effect of 30-40%. This value, of course, is based on the assumption of a complete orientation of nuclear spins, which cannot be realized in practice. In the case of incomplete orientation the symmetry axis performs a precise motion round the direction of spin, which is to be neglected only in the case of very large spins, i.e. in the quasiclassical case. The authors investigate these conditions and calculate the total cross section and neutron angular distribution in neutron scattering on oriented nonspherical nuclei by using adiabatic approximation (cf. Refs 1-3); this is justified in the case of neutron energies of more than several Mev. Concrete examples are calculated by means of the black nucleus model; results therefore hold good only for the neutron energy range of several tens of Mev. Results show that the nonsphericity effects are more appreciable in oriented than in nonoriented nuclei. The angular distribution of neutrons scattered on oriented nonspherical nuclei shows noticeably azimuthal

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asymmetry (Figs 3,4). A table contains the formulae for
 $\bar{\sigma}(f_k)/\bar{\sigma}(0)$ for spin values between 1 and 7/2. There are
4 figures, 1 table, and 8 references, 6 of which are Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii nauk Ukrainskoy SSR
(Physico-Technical Institute of the Academy of Sciences,
Ukr SSR)

SUBMITTED: August 23, 1958

Card 3/3

VISOTSKII, G.

Macroclimatic schemes of the Ukraine. Ukrmet, 1922. 28p. maps.

1. Meteorology - Ukraine.

VYSOTSKIY, G.A. [Vysots'kiy, H.A.], agronom.

Role of biologically active substances in plant life. Mikrobiol.
zhur. 23 no.2:59-62 '61. (MIRA 14:7)

1. Z Altays'kogo krayu SU-4, Biys'kogo trestu 122.
(PLANTS, EFFECT OF PHYTONICIDES ON)

VYSOTSKIY, G.A. [Vysots'kiy, H.A.], agronom

Use of hemp phytoncides in controlling pine fusariosis. Mikro-
biol. zhur. 24 no.2:65-66 '62. (MIRA 15:12)
(PHYTONCIDES) (PINE—DISEASES AND PESTS)

VYSOTSKIY, G.G.

MURATOV, Ye.A.; VYSOTSKIY, G.G.

Trichinosis of wild animals in Tajikistan. Dokl. AN Tadsh. SSR
no.19:47-50 '56. (MIRA 10:4)

1. Institut zoologii i parazitologii im. akad. Ye. N. Pavlovskogo
AN Tadshikskoy SSR i Myasokontrol'naya stantsiya Dyushambinskogo
rayona g. Stalinabada.
(Tajikistan--Trichina and trichinosis)

KLIMENKO, Aleksandr Petrovich; PETRUSHENKO, Aleksandr Antonovich; VASENTOV,
Yuriy Andreyevich; VYSOTSKIY, Grigoriy Ivanovich; CHEGLIKOV, A.G.,
otv.red.; REMENNIK, T.K., red.izd-va; RAKHLINA, N.P., tekhn.red.

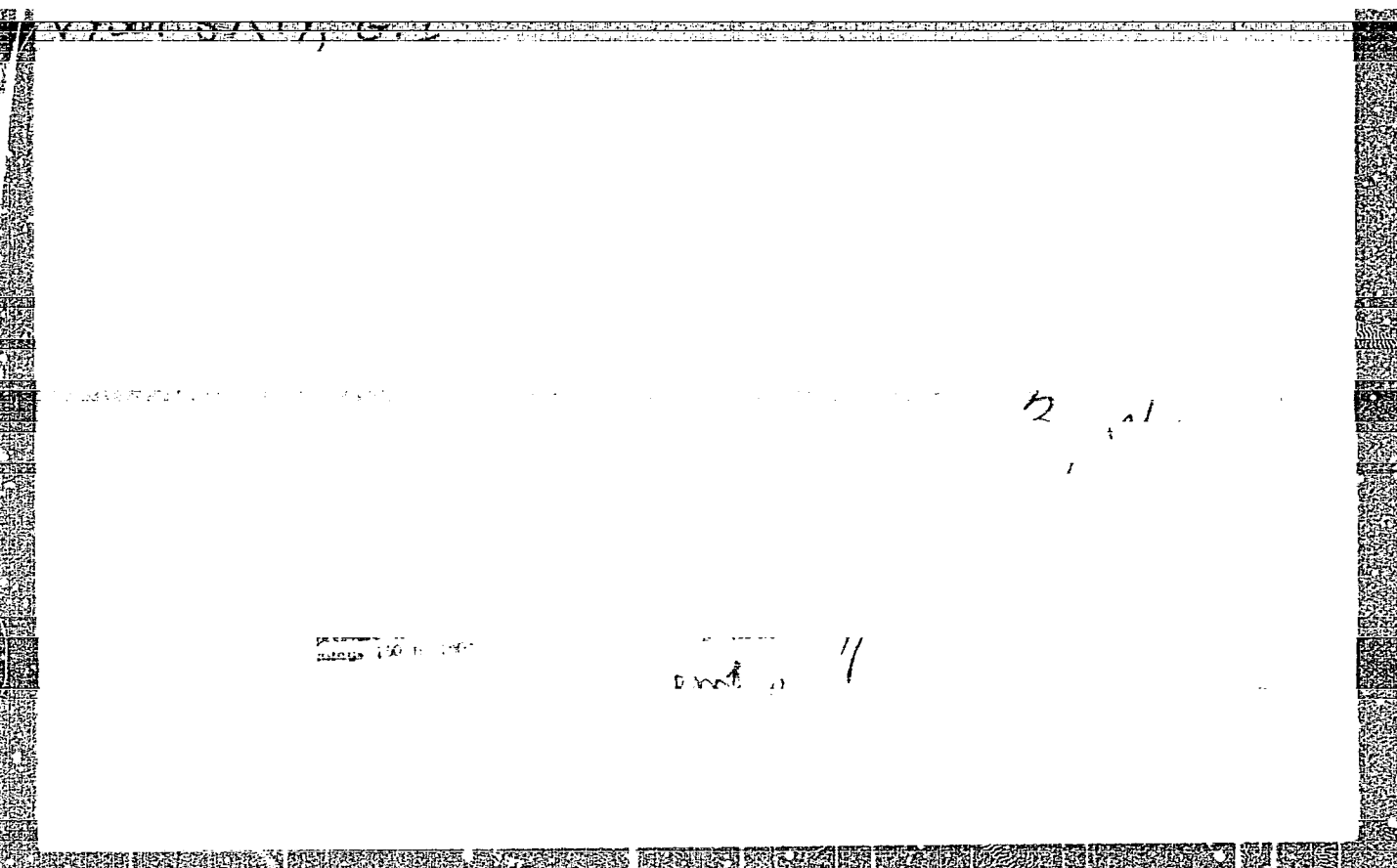
[Thermodynamic properties of light hydrocarbons of the paraffin
series] Termodinamicheskie svoistva legkikh uglevodorodov parafinovogo
riada. Kyiv, Izd-vo Akad.nauk Ukrainskoi SSR, 1960. 95 p. (Akademiia
nauk URSR, Kiev. Instytut vykorystannia gazu. Trudy, no.8).
(MIRA 14:12)

(Hydrocarbons--Analysis)

VYSOTSKIY, G.I.

Production of highly refined propane and butane. Heft. 1 gaz.
prom. no.2:56-58 Ap-Je '62. (MIRA 15:6)

1. Institut ispol'zovaniya gaza AN USSR.
(Propane) (Butane)



VYSOTSKIY, G.I.

One-flow cascade cycle of low temperature refrigeration
operating on a binary mixture. Trudy Inst. isp. gaza AN USSR
9:21-26 '61. (MIRA 15:9)
(Refrigeration and refrigerating machinery)

VYSOTSKIY, G.I.

Propane-methane mixture as a refrigerant for vapor compression
refrigeration cycle. Trudy Inst.isp.gaza AN USSR 9:27-34
'61. (MIRA 15:9)

(Refrigeration and refrigerating machinery)
(Hydrocarbons)

VYSOTSKIY, G.I.

VYSOTSKIY, G.I.

Investigating the single-pass cascade cycle for low-temperature
refrigeration. Trudy Inst. isp. gaza AN URSS no. 4:132-138 '56.
(Refrigeration and refrigerating machinery) (MIRA 10:12)

VYSOTSKIY, G.L.; INOPIN, Ye.V.; KRESNIN, A.A.

Scattering of neutrons by oriented nonspherical nuclei. Zhur.
eksp. i teor.fiz. 36 no.2:574-580 7 '59. (MIRA 12:4)

1. Fiziko-tekhnicheskii institut AN USSR.
(Neutrons--Scattering) (Nuclei, Atomic)

VYSOTSKIY, G. L., CAND PHYS-MATH SCI, "CERTAIN PROBLEMS
OF THE THEORY OF POLARIZED PHENOMENA IN NUCLEAR REACTIONS."
KHAR'KOV, 1961. (ACAD SCI UKSSR. PHYS-TECH INSTITUTE).
(KL-DV, 11-61, 208).

VYSOTSKIY, G.L.

Angular correlations in inelastic scattering of high-energy nucleons. Zhur. eksp. i teor. fiz. 40 no.5:1399-1403 My '61. (MIRA 14:7)

1. Fiziko-tekhnicheskiy institut AN Ukrainakoy SSR.
(Nucleons—Scattering)
(Angular momentum (Nuclear physics))

VYSOTSKIY, G.L. [Vysots'kiy, H.L.]

Tensor forces in direct inelastic scattering. Ukr. fiz. zhur. 5
no. 6: 752-756 N-D '60. (MIRA 14:3)

1. Fiziko-tekhnicheskii institut AN USSR.
(Particles (Nuclear physics)--Scattering)

27479

S/048/61/025/009/004/007
B104/B102

24.6600

AUTHOR:

Vysotskiy, G. L.

TITLE:

The possibility of determining reduced widths from polarization effects in direct nuclear reactions

PERIODICAL:

Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 25, no. 9, 1961, 1161 - 1162

TEXT: This paper was read at the 9th Annual Conference on Nuclear Spectroscopy. The theory of polarization effects in direct nuclear reactions (e. g. in the (d,p) reaction), considers reduced widths together with quantities that can only be calculated with radically simplified model conceptions. The proper choice of the model is especially important for studying the interaction of deuterons and protons with nuclei. In this connection the problem arises as to whether it is possible to eliminate quantities depending on model conceptions in complex experiments on polarization. It can be shown that, if the captured nucleon is indicated only by one value of the orbital angular momentum l and if that variant of the theory of polarization effects is to be applied, which neglects the spin-
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orbital interaction of proton and deuteron waves with the nucleus, it will be possible to determine the ratio of reduced widths by measuring the polarization of the proton and the pp -correlation with the polarized deuterons. For a pure multipole transition, the angular distribution of gamma quanta is given by

$$w(\vartheta, \varphi) \sim \sum_{k \text{ even}} \left\{ \begin{matrix} j_f j_i L \\ k L j \end{matrix} \right\} (L - 1 L 1 | k 0) \sum_q S_{kq}(P_d) Y_{kq}(\vartheta, \varphi), \text{ where } j, j_f,$$

and L are the spin of the excited state, the spin of the ground state, and the multiplicity, respectively; ϑ and φ are the angles of emission of the gamma quantum in the coordinate system whose z -axis is perpendicular to the axis of the reaction, and whose x -axis coincides with the deuteron beam. The spin tensors $S_{kq}(P_d)$ determine the nuclear alignment, and can be measured experimentally. They are a function of the deuteron polarization, P_d ,

and of the angle of proton emission. Analyses are particularly easy for $l = 1$, if a sufficient number of experiments were made with deuteron beams polarized either in the reaction plane or perpendicular to it. For $l > 1$ it is necessary to make experiments first with deuterons polarized in the

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The possibility of determining reduced ...

reaction plane and then with deuterons polarized perpendicular to it. Then, it will be possible to eliminate the reduced widths from the relevant expressions. There are 5 references: 2 Soviet and 3 non-Soviet. The references to English-language publications read as follows: Satchler G. R., Ann. Phys., 3, 275 (1958); Huby R. et al. Nucl. Phys., 2, 94 (1958); Baumgartner E. et al., Phys. Rev. Lett., 5, 154 (1960).

ASSOCIATION: Khar'kovskiy fiziko-tekhnicheskiy institut (Khar'kov
Physicotechnical Institute)

Card 3/3

ABDEL'-LATIF, R. A.; VYSOTSKIY, G. L.; MAKHMUD, Kh. F.

"Polarization Phenomena in the Direct Nuclear Reactions in the Resonance Region."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

Atomnaya Komissiya OAR

VYSOTSKIY, G.L. [Vysots'kiy, H.L.]; KRISHNIN, A.A.; TISHCHENKO, B.I.
[Tyshchenko, B.I.]

Focusing properties of an achromatic parallel-beam translation
system. Ukr.fiz.zhur. 4 no.4:428-431 J1-Ag '59. (MIRA 13:4)

1. Fiziko-tekhnicheskiy institut AN USSR.
(Electron optics)

Vysotskiy, G.L.
USSR/Nuclear Physics - Passage of Charged and Neutral
Particles Through Matter

C-6

Abs Jour : Ref Zhur - Fizika, No 1, 1958, 542

Author : Vysotskiy, G.L., Kresnin, A.A., Rozentsveyg, L.N.

Inst : Physical-Technical Institute, Academy of Sciences
Ukrainian, USSR

Title : Bremsstrahlung of Polarized Electrons.

Orig Pub : Zh. eksperim. i teor. fiziki, 1957, 32, No 5, 1078-1082

Abstract : The polarization properties of the bremsstrahlung arising when a polarized electron beam strikes a target are considered. It is shown that in this case the bremsstrahlung contains a circularly polarized component. For highly relativistic electrons, which are completely polarized in the direction of motion, the circular polarization near the upper limit of the spectrum amounts to as much as 25%.

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VYSOTSKIY, G.I.

Note on the possibility of determining reduced level widths from
polarization phenomena in direct nuclear reactions.
Izv. AN SSSR. Ser. fiz. 25 no.9:1161-1162 '61. (MIRA 14:8)

1. Khar'kovskiy fiziko-tekhnicheskii institut.
(Nuclear reactions)

VYSOTSKIY, G.L. [Vysots'kiy, H.L.]; KRESNIN, A.A.

Theory of bremsstrahlung of electrons by protons. Ukr. fiz. zhur.
4 no.2:164-166 Mr-Apr '59. (MIRA 13:1)

1. Fiziko-tekhnicheskiy institut AN USSR.
(Bremsstrahlung) (Electrons) (Protons)

VYSOTSKIY G. L.

30326

S/185/61/006/005/002/019
D274/D303

24.6600

AUTHOR: Vysots'kyi, H.L.

TITLE: Spin-orbit interaction and polarization effects in
direct nuclear reactionsPERIODICAL: Ukrayins'kyi fizychnyy zhurnal, v. 6, no. 5, 1961,
596 - 601

TEXT: Polarization effects are considered, spin-orbit interaction of deuteron- and proton waves with the nucleus being taken into account. The obtained general formulas are used for calculating the relationships in the particular case $l = 0$, (i.e. polarization due to spin-orbit interaction only). Thereby a simple relationship is obtained between proton polarization, the cross-section for polarized deuterons and circular polarization of the emitted gamma-rays. The spin-tensors which denote the polarization of deuterons, initial nuclei, final nuclei, and protons are denoted by $\langle T^{IM} \rangle$, $\langle T^{LQ} \rangle$, $\langle T^{FG} \rangle$, and $\langle T^{RT} \rangle$, respectively. The cross-section of polarized deuterons and nuclei is

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$$\left(\frac{d\sigma}{d\Omega}\right)_n = (-1)^n \left[\frac{1}{2}\right]^n \sum_{LM, LQ} \langle T^{LM} \rangle \langle T^{LQ} \rangle A \begin{pmatrix} I & L & 0 & 0 \\ M & Q & 0 & 0 \end{pmatrix}, \quad (6)$$

where $[j] = 2j + 1$. Expressions are given for the spin tensors, if only linear terms are retained, then

$$A \begin{pmatrix} I & L & F & R \\ M & Q & G & T \end{pmatrix} = A^0 \begin{pmatrix} I & L & F & R \\ M & Q & G & T \end{pmatrix} + A^{p,d} \begin{pmatrix} I & L & F & R \\ M & Q & G & T \end{pmatrix}, \quad (9)$$

where A^0 does not depend on the spin-orbit interaction, and $A^{p,d}$ contains terms contributed by the interference between central- and spin-orbit interaction; the quantity A depends on the amplitude S of the (d,p)-reaction and on the tensors T . The notation

$$\rho_{kq}(ll') = \sum_{mm'} (-1)^{l'-m'} (lml' - m' | kq) I_{lm} I_{l'm'}, \quad (10) \quad \checkmark$$

is introduced, as well as analogous notations for $\rho_{kq\alpha}^p$ and $\rho_{kq\alpha}^d$; l and m are the orbital angular momentum of the neutron and its projection. After rather cumbersome calculations one obtains ex-
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pressions for Λ^{pd} and Λ^0 . The obtained general expressions are used (with $i = 0$) for calculating the following relationships:

$$P_p \left(\frac{d\sigma}{d\Omega} \right)_0 = -\theta_{0j}^2 \frac{[j]}{[i]} \left[\frac{1}{2} \right]^{1/2} \left[\text{Re } p_{0010}^p + \frac{3}{2} \text{Re } p_{0010}^d \right], \quad (15)$$

where $(d\sigma/d\Omega)_0$ is the cross-section of the process in case of unpolarized deuterons; if the deuterons are polarized, then

$$\left(\frac{d\sigma}{d\Omega} \right) = \left(\frac{d\sigma}{d\Omega} \right)_0 + \frac{[j]^{1/2} \left[\frac{1}{2} \right]^{1/2}}{[i]^{1/2}} \left[\langle T_d^{10} \rangle A^{p,d} \begin{pmatrix} 1000 \\ 0000 \end{pmatrix} + \langle T_d^{20} \rangle A \begin{pmatrix} 2000 \\ 0000 \end{pmatrix} \right], \quad (16)$$

The circular polarization C is

$$C = \frac{(-)^j}{[j]} \frac{\sum_{LL'} F_1(LL'j_f j) C_L C_{L'}}{\sum_{LL'} F_0(LL'j_f j) C_L C_{L'}} \langle T_j^{10} \rangle P_1(\cos \theta), \quad (18)$$

where C_L is the amplitude of multipole transitions, j_f is the spin Card 3/5

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of the transition state,

$$F_k(LL'JJ) = (-)^{J'-J-1} [J]^{1/2} [L]^{1/2} [L']^{1/2} (LL'L'-1|k0) W(JJLL', kJ), \quad (19)$$

$$\langle T_J^{10} \rangle \left(\frac{d\sigma}{d\Omega} \right)_0 = (-)^{J'} \theta_{0J}^2 \frac{[J]}{[I][1]} (-)^{\frac{1}{2}+I+J} \left\{ \begin{matrix} \frac{1}{2} & \frac{1}{2} & 1 \\ J & J & I \end{matrix} \right\} [\text{Re } \rho_{0010}^p + 2 \text{Re } \rho_{0010}^d]. \quad (20)$$

In formula (16), a term contributed by the deuteron alignment has to be included. For example, if the deuteron polarization is due to an axisymmetric field, one obtains

$$\left(\frac{d\sigma}{d\Omega} \right)_1 + 2 \left(\frac{d\sigma}{d\Omega} \right)_1 - 3 \left(\frac{d\sigma}{d\Omega} \right)_0 = -\theta_{0J}^2 \frac{[J]}{[I]} \frac{P_d}{\sqrt{2}} [\text{Re } \rho_{0010}^p + \text{Re } \rho_{0010}^d]. \quad (21)$$

From formulas (15) to (21), the sought-for relationship is obtained:

$$\frac{\langle T_J^{10} \rangle}{P_p} = \frac{4\sqrt{2}}{3} (-)^{I-J-\frac{1}{2}} \left\{ \begin{matrix} \frac{1}{2} & \frac{1}{2} & 1 \\ J & J & I \end{matrix} \right\} \left[\frac{\left(\frac{d\sigma}{d\Omega} \right)_1 + 2 \left(\frac{d\sigma}{d\Omega} \right)_1 - 3 \left(\frac{d\sigma}{d\Omega} \right)_0}{P_p P_d \left(\frac{d\sigma}{d\Omega} \right)_0} - \frac{3}{4} \right]. \quad (22)$$

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This formula connects quantities which were directly measured in experiments. The formula can be verified by investigating nuclei with filled s-shell. In obtaining this formula, the particular type of interaction between protons, deuterons and nuclei was not specified. There are 5 references: 2 Soviet-bloc and 3 non-Soviet-bloc. The references to the English-language publications read as follows: H. Newns, M. Refai, Proc. Phys. Soc., A71, 627, 1958; W. Tobocman, Phys. Rev., 115, 98, 1959; C. Levinson, M. Banerjee, Ann. of Phys., 3, 67, 1958. ✓

ASSOCIATION: Fizyko-tekhnichnyy instytut AN URSR, m. Kharkiv (Physicotechnical Institute AS UkrSSR, Kharkiv)

SUBMITTED: February 20, 1961

Card 5/5

VYSOTSKIY, G.L. [Vysots'kiy, H.L.]

Spin-orbital interaction and polarization phenomena in direct
nuclear reactions. Ukr. fiz. zhur. 6 no.5:596-602 3-0 '61.
(MIRA 14:11)

1. Fiziko-tekhnicheskiy institut AN USSR, g. Khar'kov.
(Nuclear reactions)

VYSOTSKIY, G.L. [Vysots'kiy, H.L.]

Angular correlations in (d, p) and (p, d) reactions. Ukr.fiz.
zhur. 5 no.3:289-294 My-Je '60. (MIRA 13:8)

1. Fiziko-tekhnicheskiy institut AN USSR.
(Nuclear reactions)

21(7)

AUTHORS:

Vysotskiy, G. L., Sitenko, A. G.

SOV/56-36-4-28/70

TITLE:

On the Theory of Direct Nuclear Reactions With the Participation of Polarized Particles (K teorii pryamykh yadernykh reaktsiy s uchastiyem polyarizovannykh chastits)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 4, pp 1143-1153 (USSR)

ABSTRACT:

In the introduction, the authors discuss the subjects and the results of a number of English papers (Refs 1-11) dealing with similar problems. The present paper was intended to work out a theory of direct nuclear reactions (stripping reaction and deuteron formation) in which polarized particles participate; such reactions are widely used in nuclear spectroscopy. For their investigations the authors use the method of perturbed waves; the spin-orbit interaction is neglected because it makes a comparatively small contribution to the cross section. Also Coulomb effects are neglected because they are insignificant in the case of sufficiently high energies. The paper deals with a mathematical investigation of the angular distribution and polarization of the products of stripping- and capture reactions during the action of polarized particles

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upon arbitrarily oriented nuclei. The angular distribution of protons produced in the case of stripping relations under the influence of polarized deuterons has azimuthal asymmetry. An investigation of this asymmetry offers the possibility of determining the spin of the residual nucleus in the final state. Also other possibilities of using stripping reactions with polarized deuterons for the purpose of obtaining additional data on nuclear structure are investigated. In detail, it was found possible to determine the reduced widths for states with different values of the orbital momentum of an absorbable neutron. The formation of deuterons on nuclei by polarized protons is also characterized by the angular distribution with azimuthal asymmetry. The deuterons produced on this occasion are polarized. The capture reaction under the influence of polarized nucleons can be neglected in order to obtain polarized deuterons. The various chapters of this paper deal with the following subjects: The (d,p) stripping reaction with polarized particles. After the problem has been dealt with in a general manner, a special investigation is carried out of three simple cases: a) nucleus and deuterons are not polarized, b) the

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On the Theory of Direct Nuclear Reactions With
the Participation of Polarized Particles

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nucleus is not polarized and deuterons are polarized, c) the nucleus is polarized and the deuterons are not. The next part deals with (d,p)- capturing reactions with polarized particles. Again the cases a, b, and c are dealt with specially after a general investigation. In the last chapter the angular distribution and the polarization of protons are finally calculated for the concrete case of the reaction $B^{11}(d,p)B^{12}$ by using the given parameter values. The results obtained are shown by a diagram. The authors thank Yu. Berezhnyy and V. Kharchenko for their help in carrying out numerical computations. There are 1 figure and 15 references.

ASSOCIATION: Fiziko-tekhnicheskiy institut Akademii Nauk Ukrainskoy SSR
Physico-Technical Institute of the Academy of Sciences,
Ukrainskaya SSR) Khar'kovskiy gosudarstvennyy universitet
(Khar'kov State University)

SUBMITTED: October 2, 1958

Card 3/3

VYSOTSKIY, G.L.; KRESHIN, A.A.; ROZENTSVYIG, L.N.

Bremsstrahlung of polarized electrons. Zhur.eksp.i teor.fiz.
32 no.5:1078-1082 My '57. (MIRA 10:7)

1. Fiziko-tekhnicheskii institut Akademii nauk USSR.
(Electron beams) (Polarization (Electricity)) (Electric radiation)

VYSOTSKIY, G. L.

AUTHOR

VYSOTSKIY, G. L., KRESNIN, A. A., ROZENTSVEYG, L. N.

56-5-17/55

TITLE

The Deceleration Radiation of Polarized Electrons.

(Tormoznoye izlucheniye polyarizovannykh elektronov.- Russian)

PERIODICAL

Zhurnal Eksperim. i Teoret. Fiziki 1957, Vol 32, Nr 5, pp 1078-1082 (USSR)

ABSTRACT

The paper under review investigates the polarizing properties of deceleration radiation for the case that the electron bundle falling upon the particle is polarized. The authors describe the polarizing properties of the photon bundle by the density matrix

$$\rho_0 = (1/2)(1 + \sum \vec{\Omega}), \text{ with } \vec{\Omega} \text{ denoting a}$$

"matrix vector" with the components

$$\Omega_1 = \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}, \Omega_2 = \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}, \Omega_3 = \begin{pmatrix} 0 & -i \\ i & 0 \end{pmatrix}.$$

$\{\Omega_1, \Omega_2, \Omega_3\}$ are the Stokes parameters. In this context, the

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56-5-17/55

The Deceleration Radiation of Polarized Electrons (Tormosnoye izlucheniye polyariz ovamykh elektronov.- Russian)

vectorial way of writing of } has only formal significance. First of all, the paper under review lists an equation for the determination of the parameters

}₁

for the case that the incoming electron bundle is not polarized. In this case, the deceleration radiation is linearly polarized.

The state of polarization of the electrons with the impulse p_0 is described by a four-row density matrix. Also for the case of a polarized electron bundle expressions for the Stokes parameters of the deceleration radiation are derived. The deceleration radiation has no influence whatsoever on the cross section of the deceleration radiation as computed in Born's approximation. In the boundary case of extremely relativistic energies, the effects of the screening have to be taken into account. The course of the computations is followed step by step, and the (rather lengthy) expressions obtained are written in their explicit form. A diagram gives a clear picture of the

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The Deceleration Radiation of Polarized Electrons.

56-5-17/55

circular polarization of the deceleration radiation of the
extremely relativistic electrons.
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Article found in archives of Institute of Grain
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treated in article are of great current interest,
it has been reproduced with slight condensation.
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